ETHICS AND IDEOLOGY IN BIOTECHNOLOGY: A PRACTICAL APPROACH

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IDEOLOGY VS ETHICS

- When many people talk about ethics, what they are really referencing is ideology
  - First principle beliefs remain relatively static
    - Generally a personal dominant moral or religious or quasi-religious value…or
  - An overall uneasiness or distrust of scientific motives—e.g. the Frankenstein myth

CULTURAL COGNITION

▪ People's beliefs about risk are shaped by their core values

hierarchist

individualist ← → communitarian

egalitarian

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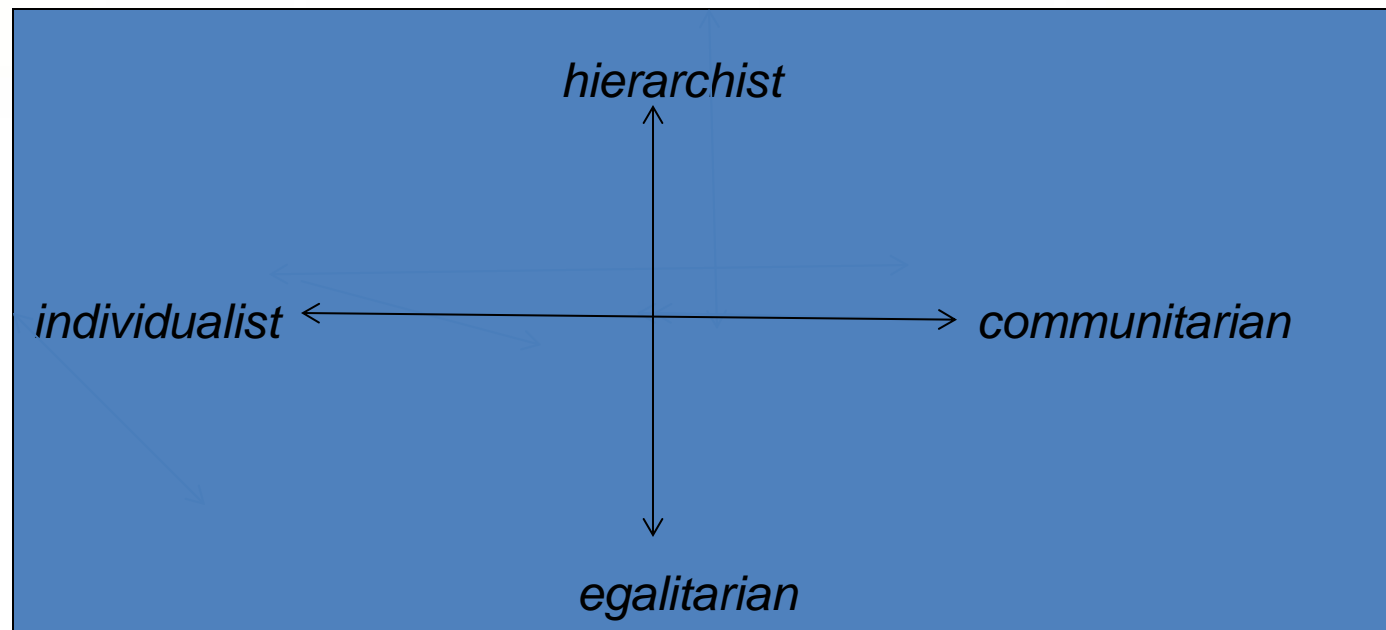
WHAT WE'RE NOT DISCUSSING TODAY

- Morality:
  - "A doctrine or system of moral conduct" of a cultural group or society
- Faith-based or Religious Ethics
  - (although these may need to be considered at times)
- Traditional Philosophy

"THE UNDERMINING EFFECT OF THE RHETORIC OF THE BESIEGED"

BIOLOGY IS DIFFERENT

SEPARATING THE VISUALLY FANTASTIC FROM THE ETHICALLY PROBLEMATIC

BIG QUESTIONS

- Is DNA the Essence of Life?

BIG QUESTIONS
IS NATURE, NATURAL ALWAYS GOOD?

BIG QUESTIONS

- Human Enhancement—Print a human genome cost-effectively within a generation?
  - Animal biotechnology a slippery slope?

- Artificial Intelligence

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ETHICS AND EDUCATION

- They are not the same
- "Education" presupposes more answers are held by one side
- Ethical deliberation is dynamic on both (all?) sides

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ETHICS & DEMOCRACY

- May be mutually dependent but they are not the same
- May resort to democratic principles to resolve an ethical dilemma, but ethical deliberation anticipates change

ETHICS AND LAW

- Law typically follows culture; law has a hard time changing culture

- Regulation, indeed "ethical" regulation, is important; but at times it may actually stifle ethical discussion.

- Procedural choices may be political choices
  - The choice of procedure is frequently governed by the political outcome desired

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ETHICS AND LAW IN BIOTECHNOLOGY CONTEXT

- Typical divide:
  - "Clinical or substantive questions": ie. "three parent embryos"
  - Biosafety
- This divide has historical and legal roots
  - Asilomar
  - Legal and political response

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RISK ASSESSMENT PRINCIPLES HAVE ETHICAL FOUNDATIONS

RISK/BENEFIT CALCULUS

- Assumes risks and benefits can be calculated
- Good understanding of opportunity cost
- Tends to over-account benefit

PRECAUTIONARY PRINCIPLE

Assumes risks (or causes) cannot be known with certainty

Does not usually fully account for opportunity cost

Tends to over-account disaster potential

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PRACTICAL (OR APPLIED) ETHICS

- An attempt to implement general norms and theories for particular problems and contexts

- The use of theory, argument and analysis to examine moral problems, practices and policies...

  - Beauchamp and Childress, *Principles of Biomedical Ethics*

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PRINCIPLE-BASED ETHICS

- Belmont Report—Childress & Beauchamp
  - Beneficence
  - Autonomy
  - [Non-Malfeasance]
  - Justice

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PRINCIPLE-BASED ETHICS

- Three-Rs Construct
  - Replacement
  - Reduction
  - Refinement
- Provides an relatively simple algorithm that has a wide scope protecting a variety of interests
- But danger that it blocks other ethical consideration

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ETHICAL ANALYSIS

- Ethical analysis is a process
- Good ethical analysis requires practice confronting real-life problems
- Ethical analysis is best practiced in group discussions that involve listening, understanding others' perspective, expressing values and opinions, and thinking independently
- Ethical analysis involves imagination

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PRINCIPLE-BASED ETHICS

- Is it worth developing a principle-based ethics for biotechnology?

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# ETHICS IN BIOTECHNOLOGY
PRINCIPLES USED IN BIOETHICS

- Do no harm
- Produce Benefits
- Produce a net balance of benefits over harms and other costs
- Distribute benefits, harms and other costs fairly
- Respect personal choices
- Respect the needs of those not competent to make choices
- Respect privacy and confidentiality
- Don't deceive

SAMPLE ETHICAL QUESTIONS THAT PARTICIPANTS SHOULD TRY TO ANSWER

- Biotechnology may limit/augment diversity
- Is it ethical to deny populations food sources?
- Is it ethical to deny animals—or humans—ways of avoiding disease?
- Animal/synthetic biotechnology may give rise to new zoonotic disease—and new lethal disease
- Bio/synthetic technology may create—or limit environmental risk
- Bio/synthetic biotechnology moves too fast
- Animal Welfare—e.g. models

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ETHICAL QUESTIONS PARTICIPANTS SHOULD TRY TO ANSWER

- How much genetic engineering is too much?

- What kind of organisms should not be produced?
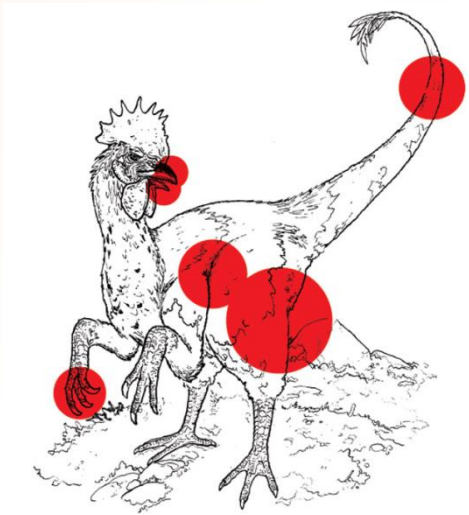
ETHICAL QUESTIONS PARTICIPANTS SHOULD TRY TO ANSWER

▪ Is it ethical to put human neural cells in animal brains?

▪ Should such animals reproduce?

▪ How do we contain processes not meant to be contained—gene drives

▪ BIOTERRORISM

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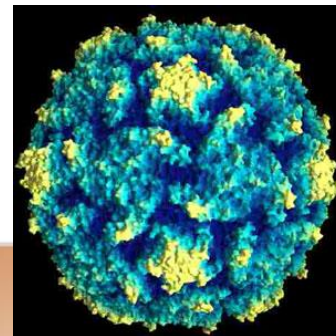
DATA ETHICS

- Growing focus of discussion as Big Data becomes more useful
  - Sharing benefits and promoting innovation
  - Data and natural resources

QUESTIONS?

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